

PROCEEDINGS OF THE ROYAL ENTOMOLOGICAL SOCIETY OF LONDON

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ORDINARY MEETING

Saturday, 7th June, at 2 p.m.

at Rothamsted Experimental Station, Harpenden, Herts.

By invitation of the Director of Rothamsted Experimental Station the June meeting of the Society will be held at Harpenden on Saturday, 7th June.

Preliminary details appeared on pages 17-18 of these agenda.

Fellows and their Guests will be met by members of the staff from 10 a.m. onwards in the main laboratory building (identified by a greenish dome).

During the morning, and after the Meeting in the afternoon, they will be able to join small parties on conducted tours of inspection of the Farm and Laboratories.

AGENDA

1. Confirmation of the Proceedings of the Ordinary Meeting held on 7th May, 1952.
2. Recommendations of candidates for Fellowship.
3. Announcement of election of new Fellows.
4. Additions to the Library. [See page 26].
5. Admission of Fellows.

Any Fellow who has not been formally admitted to the Society under Chapter XIV, Section 4 of the Bye-laws and attends the meeting on 7th June, 1952, is requested to inform the Secretary before 1.15 p.m. on that date.

6. **An account of some of the entomological work in progress, by members of the staff of the Station.**

The following is a brief summary of the main investigations :

Entomology Department.

Insect abundance in relation to weather ; relative abundance of insects in mixed populations ; migration ; drift ; gall midges—biology and population studies ; soil fertility and insects ; effects of crowding on caterpillars (phases) ; control of greenfly—parasites and predators.

Bee Research Department.

Nosema disease and the mechanics of digestion of pollen ; foraging behaviour ; behaviour at the hive entrance ; use of bees as pollinators ; instrumental insemination ; egg laying behaviour ; European Foul Brood disease ; relation between brood rearing and food supplies ; food transmission ; individuality and adaptability ; communication ; effects of fertilisers on nectar secretion of flowers ; composition of nectars and its effect on crop selection by bees ; Bumble bee behaviour in relation to pollination of leguminous crops.

Insecticides Department.

Selection and rearing of test insects ; factors in the resistance of insects to insecticides ; bio-assay of insecticides ; mechanism of selection of strains of insects resistant to insecticides ; insecticides derived from plants ; factors affecting the action of deposits of insecticides on plants ; biochemical and physiological studies on the action of insecticides.

Plant Pathology Department.

Aphid transmission of plant viruses ; aphid feeding studies using radioactive indicator ; spread of sugar beet viruses ; aphid movement in crops ; effect of insecticides on aphid behaviour.

TRANSPORT.

Times of Trains from St. Pancras on Saturday.

St. Pancras	. 9.0	9.45	10.50	12.8	12.46	12.55	12.38	1.10
Harpenden .	. 9.41	10.53	11.34	12.54	1.27	1.32	1.40	2.1

Times of Green Line Coaches.

Route 712	. .	Victoria	Baker Street	Golders Green	Harpenden
		9.19	9.32	9.46	10.52
		and every hour.			
Route 714	. .	Marble Arch	Baker Street	King's Cross	Harpenden
		9.7	9.13	9.21	10.33
		then every half hour until			
		10.7	10.13	10.21	11.33
			10.53	11.2	12.14
		11.7	11.13	11.21	12.33
		11.44	11.50	11.58	1.10

All Green Line coaches stop just opposite the main buildings (last stop before Harpenden).

The double deck buses 321 from Watford, Rickmansworth and St. Albans, and 351 from Uxbridge pass through Harpenden (alight at "The George") approximately every 15 and 30 minutes respectively.

To get to Rothamsted from the railway station : Go down the slope from the station, turn left at the bottom of the slope down Station Road. Turn left at the cross roads (about 100 yards) and along the main road to London, passing the "Silver Cup Inn" (about another 300 yards); bear right at a small branch

road just beyond the inn and continue along the edge of the common until the laboratories are reached in about another 100 yards—just over a quarter of a mile from the station.

Everyone coming by local bus 321 should alight at "The George," proceed back along the main road to London to the "Silver Cup Inn," and then as above.

Cars from London and district should go to St. Albans and then take A6 north from St. Albans towards Luton. About 4 miles beyond St. Albans the road comes out on to Harpenden Common and then descends towards Harpenden Village. The laboratory is about $\frac{1}{4}$ mile short of the village, facing the common on the left and about 100 yards back from the main road. It can be recognized by a greenish dome.

Arrangements for Lunch and Tea.

Packed sandwich lunches will be available for those who have already ordered them—otherwise Fellows should bring their own lunch.

Tea will be provided by the Experimental Station.

Fellows who expect to attend the meeting and have not yet returned the post card enclosed with the previous agenda are requested to do so by 30th May at the latest.

PROCEEDINGS OF THE ORDINARY MEETING HELD ON 7TH MAY, 1952.

Mr. N. D. RILEY, C.B.E., President, in the Chair.

Present 86 Fellows and 33 Visitors.

The minutes of the Ordinary Meeting held on 2nd April, 1952, were confirmed and signed by the President.

The names of the following candidates for election were read for the first time : Dr. Cyril Astley Clarke, M.A., M.D., F.R.C.P. ; Mr. John P. Dempster, B.Sc. ; Mr. Errol William Valentine, B.Agr.Sc. ; Mr. Gordon Flinders Gross, B.Sc. ; Dr. Daniel Griffin-Warwicke, D.Sc. ; Mr. Harold Farnham Lower, Monsieur Jacques Nègre, Mr. Bryan Leonard Sage, Professor J. Samuel Raj, M.A., M.Sc. ; Mr. Gordon Surtees, Mr. Arthur Thomas Swinscoe, and Mrs. Clare Vissian.

For the second time (taken as read) : Mr. Gordon Roy Evans ; Mr. James Green, B.Sc. ; Mr. Francis Vivian Lincoln Jarvis, B.Sc. ; Mr. Basil Anthony Jones, B.Sc. ; Mr. John Leslie Messenger ; and Mr. James Gordon Pendergrast, M.Sc.

The Secretary read the names of the following newly elected Fellows of the Society : Mr. Mansur Ahmed, B.Sc., District Agricultural Officer, P.O. Kushtia, East Pakistan ; Mr. G. G. Cavanagh, 40, Priory Hill, Dartford, Kent ; Mr. T. H. Coaker, 50a, Oaklands Grove, London, W.12 ; Mr. R. D. Eady, British Museum (Natural History), Cromwell Road, London, S.W.7. ; Mr. V. F. Eastop, B.Sc.,

Department of Zoology, Downing Street, Cambridge ; Dr. Mario Giaquinto-Mira, c/o H. Pearce, Esq., 62, Danescroft Drive, Leigh-on-Sea, Essex ; Mr. Nigel G. M. Hague, 39, Heath Drive, Potters Bar, Middlesex ; Mr. G. A. Haswell, Melrose, 23, Russell Avenue, Hartley, Plymouth, Devon ; Mr. H. Inglesent, Lea Holme, Archer Park, Middleton, Lancs. ; Miss Astrid Lóken, Zoologisk Museum, University of Bergen, Norway ; Mr. S. A. Manning, F.L.S., 4, Patteson Road, Norwich, Norfolk ; Mr. T. J. Mortimer, 18, Heathway, Shirley, Surrey ; Mr. B. A. Pinder, 26, Moberly Road, Salisbury, Wilts. ; Mr. W. J. Sanders, 34, Gipton Wood Avenue, Leeds, 8 ; Mr. Dayal Saran Srivastava, M.Sc., 24, Fitzwilliam Street, University Road, Belfast ; Mr. B. R. Stuckenberg, B.Sc., 50, 5th Avenue, Walmer, Port Elizabeth, South Africa.

The following papers, accepted for publication in the *Transactions*, were read in title :

"Studies on the reproductive cycle of three species of Heteroptera, with special reference to the over-wintering stages," by T. E. Woodward.

"*Matsucoccus pini* (Green, 1925) (Homoptera, Coccoidea, Margarodidae). Bionomics and external anatomy with reference to the variability of some taxonomic characters," by K. L. Boratynski.

"Notes on the biology of *Melampsalta cruentata* Fabricius (Hemiptera-Homoptera : Cicadidae) with special reference to the nymphal stages," by R. A. Cumber.

"The *etheocles-ethalion* complex : a tentative reclassification of the group (Nymphalidae : Charaxidinae)," by V. G. L. van Someren and T. H. E. Jackson.

"On the classification of the Tettigometridae (Homoptera : Fulgoroidea)," by R. G. Fennah.

Thanks were voted to donors of gifts to the Library since the last meeting.

Mr. G. G. Cavanagh, Miss J. M. Chamberlain, Mr. T. H. Coaker, Mr. N. G. M. Hague, Mr. D. W. Hall, Mr. G. A. Haswell, Mr. S. K. P. Hunter, Dr. A. D. Lees and Mr. T. J. Mortimer signed the Obligation Book and were admitted Fellows of the Society.

The Secretary announced that Council had decided that the Ordinary Meeting usually held in September be abandoned. The meeting due to be held on 3rd September had therefore been cancelled.

Mr. D. J. Lewis exhibited a tube containing some thousands of specimens of *Tanytarsus lewisi* Freeman, a Chironomid fly which is exceptionally abundant in Khartoum in the winter months, when it occurs in such numbers as to constitute a grave nuisance, causing asthmatic symptoms in susceptible individuals. Larvae and pupae are found in the river and come to the surface at night. Adults emerge in the early morning. Oil was being tested as a method of control.

Mr. Lewis also described the discontinuous distribution of three species of *Simulium* in the Sudan, and pointed out that onchocerciasis occurred only in the southern part of the distribution of *S. damnosum*.

Mr. M. W. R. de Vere Graham exhibited, on behalf of Professor G. C. Varley, a living male *Stylops* just emerging from a male of *Andrena nigroaenea* Kirby. The puparium projected from between the abdominal segments. Live males of *Stylops* were rarely found, and the bee exhibited had been kept in a refrigerator with a view to exhibiting the *Stylops* alive on the present occasion.

Dr. I. H. H. Yarrow exhibited specimens of two species of ants taken by himself in Dorset :

1. *Formica congerens* Nylander, from what is probably the only known colony in this country.
2. *Formicoxenus nitidulus* Nylander, a guest in the nests of *Formica* spp.

The President exhibited a copy of *Nova stirpium adversaria* by M. L'Obel and P. Pena, 1576, formerly in the possession of Thomas Mouffet, the "Father of British Entomology" and author of *Theatrum Insectorum*, 1634, which had been presented to the Library by Dr. Willoughby Gardner. The work, which contained Mouffet's signature on the title page and his annotations in the text, was of unique interest, and formed a most welcome addition to the Society's Library.

Mr. W. B. Broughton gave a talk, illustrated by gramophone recordings,* on the stridulation of British grasshoppers, an abstract of which appeared on page 16.

A discussion followed, in which Dr. Uvarov said that Mr. Broughton's work opened up a vast new field of investigation. Dr. Thorpe said he was surprised at the low frequencies of many of the songs and enquired the upper limit of the apparatus used, remarking that Pumphrey had observed frequencies of 10-20,000 cycles/second, and had shown that insects were sensitive to amplitude changes and insensitive to frequency changes. As American workers reported much higher frequencies possibly these were cut out by the present technique. Mr. Broughton agreed that the frequencies were low, but American workers were fortunate in having so many Tettigoniidae which generate high frequencies. The limit of the apparatus used for the present recordings was 20,000 cycles/second, and it was likely that insect songs did include higher frequencies. Sensitivity to frequency changes could best be tested by playing the records back to the insects.

Mr. C. E. Watts (a visitor, who had provided the recording apparatus and materials) said it was possible to test the crystal with artificial impulses, but not with sounds from nature. So far the microphone response was flat up to 15 kc./s. He was sure the insects were able to generate higher frequencies.

Professor Wigglesworth referred to the work of Regen, who had shown in his work on crickets that sounds transmitted by telephone could be recognized by the insect even when they were quite unrecognizable to the human ear, indicating that the insect was responding to the pulse rhythm. Professor Wigglesworth also referred to the work of Busnel and Chavasse in France, who, using an oscilloscope for analysis, had reported frequencies of 20-100 kc./s. Mr. Broughton replied that it was necessary to be cautious in interpreting results which could not be checked by auditory comparison.

Dr. Richards remarked that some songs were more recognizable than others, that of *C. parallelus* being to him most readily recognized, whereas that of *bicolor* was only recognized with difficulty. Mr. Broughton thought this was probably because the former had a slower song.

Mr. C. R. Wallace (a visitor) gave a paper on some interactions between insects and their environments in Australia, an abstract of which appeared on pages 16-17. Owing to pressure of time, Mr. Wallace was unable to cover all the points included in the abstract.

E. B. BRITTON, *Honorary Secretary.*

The next meeting will be held on 2nd July, at 5.30 p.m.

*A few copies of the records are available for loan to *bona fide* workers in this field with apparatus adequate for these frequencies. Enquiries should be sent to Mr. Broughton direct.

ADDITIONS TO THE LIBRARY.

Presented.

- L'Obel, M., and Pena, P. *Nova stirpium adversaria*. 4to. Antverpiae. 1576. (Formerly in the possession of Thomas Mouffet, and containing his signature and notes.) [Dr. Willoughby Gardner.]
- Clark, John. *The Formicidae of Australia*. Vol. 1. Subfamily *Myrmeciinae*. 8vo. Melbourne, 1951. [Commonwealth Scientific and Industrial Research Organization, Australia.]
- [Dale, C. W.] *Orthoptera*. [Label list reprinted from *Catalogue of British Orthoptera, Neuroptera and Trichoptera*. Revised and corrected. 8vo. Colchester, 1907.] [Mr. Philip Harwood and Mr. D. K. McE. Kevan.]
- Hopkins, G. H. E., and Clay, Theresa. *A check list of the genera and species of Mallophaga*. 8vo. London, 1952. [Trustees of the British Museum.]
- Seevers, Charles H. Revision of North American and European Gyrophaenae (Coleoptera). *Fieldiana, Zoology*, **32**: 659-762, 1951. [Chicago Natural History Museum, by exchange.]
- Womersley, H. The scrub-typhus and scrub-itch mites of the Asiatic-Pacific region. *Rec. S. Austr. Mus.*, **10**: 1-675, pls., 1952. [The author.]
- Austen, E. E. *List of British Muscidae including the Tachinidae*. 8vo. Privately printed, 1896. (Annotated by Austen.) [Mr. C. T. Gimmingham, O.B.E.]
- Holmgren, A. E. *Ichneumonologica suecica*. 8vo. 2 vols. in 1. Holmiae. 1864. [Mr. C. T. Gimmingham, O.B.E.]
- Holmgren, A. E. [A volume containing *Monographia Ophionidum sueciae*, *Monographia Pimplariarum sueciae*, *Dispositio synoptica Mesoleiorum sueciae* and *Monographia Tryphonidum sueciae*. 1856-76.] [Mr. C. T. Gimmingham, O.B.E.]
- Saunders, Edward. *Catalogue of British Hymenoptera (Aculeata)*. 8vo. Perth, 1890. [Mr. C. T. Gimmingham, O.B.E.]
- Bridgman, J. B., and Fitch, E. A. *Introductory papers on Ichneumonidae*. 1880-85. Bound with *Synopsis of the Ichneumonites*. n.d. [Mr. C. T. Gimmingham, O.B.E.]

NOTE.—All these items presented by Mr. Gimmingham are from the Library of the late Albert Piffard, a Fellow of the Society from 1901-10.

In addition, separates were presented by Pest Control Limited; East Malling Research Station; Department of Agriculture, British Guiana; Dr. A. da Costa Lima; Dr. Ergene Saadet; Mr. L. C. Scaramuzza; Dr. T. E. Woodward; Dr. N. E. Hickin; Mr. W. H. R. Lumsden; Mr. N. D. Riley, C.B.E.; Mr. H. S. Darling; Companhia de Diamantes de Angola; Captain T. Dannreuther, R.N.; Science Service, Department of Agriculture, Canada; Mr. B. Jobling; Commonwealth Institute of Entomology; and Dr. M. A. H. Qadri.